

Attorney Docket No. 04218/LH

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No.: EV 366 565 346 US

**IN THE UNITED STATES PATENT  
AND TRADEMARK OFFICE**

Date of Deposit: April 8, 2004

Applicant(s): R. HATTORI

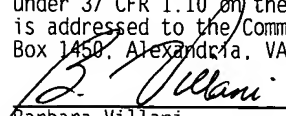
Serial No. : Not yet assigned

Filed : Herewith

For : DRIVING DEVICE,  
DISPLAY APPARATUS  
USING THE SAME, AND  
DRIVING METHOD  
THEREFOR

Art Unit :  
Examiner :

I hereby certify that this paper is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

  
Barbara Villani

In the event that this Paper is late filed, and the necessary petition for extension of time is not filed concurrently herewith, please consider this as a Petition for the requisite extension of time, and to the extent not tendered by check attached hereto, authorization to charge the extension fee, or any other fee required in connection with this Paper to Account No. 06-1378.

**INFORMATION DISCLOSURE STATEMENT**

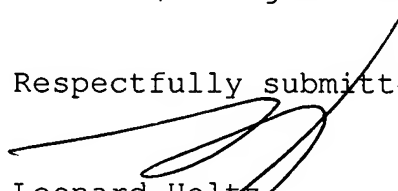
Commissioner for Patents  
P.O. Box 1450,  
Alexandria, VA 22313-1450

S I R :

It is respectfully requested that the documents listed on the attached forms PTO/SB/08A and 08B be considered and made of record. Copies of the foreign documents are submitted herewith. Also enclosed is an International Search Report.

The U.S. Patent Documents identified on said form PTO/SB/08A are not enclosed herewith since the USPTO waived the requirement to file copies of U.S. Patents and U.S. Patent Application Publications for U.S. Patent Applications filed after June 30, 2003. (See 1276 OG 55 (05 August 2003)).

Respectfully submitted,

  
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LH:bv

Please type a plus sign (+) inside this box →



PTO/SB/08A (08-00)

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitute for Form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				Application Number		
				Filing Date		Herewith
				First Named Inventor		HATTORI
				Group Art Unit		
				Examiner Name		
Sheet	1	of	2	Attorney Docket Number		04218/LH

### U.S. PATENT DOCUMENTS

Exam. Inits*	Cite No <sup>1</sup>	Document Number	Kind Code <sup>2</sup>	Name of Patentee or Applicant	Publication Date MM-DD-YYYY	Relevant Portion
		6,323,631	B1	Juang	11-27-2001	
		6,369,786	B1	Suzuki	04-09-2002	
		6,473,064	B1	Tsuchida et al	10-29-2002	
		6,587,087	B1	Ishizuka	07-01-2003	

### FOREIGN PATENT DOCUMENTS

Exam Inits*	Cite No <sup>1</sup>	offc <sup>3</sup>	Document Number <sup>4</sup>	Kind Code <sup>5</sup>	Name of Patentee or Applicant	Publication Date MM-DD-YYYY	Relevant Portion	T <sup>6</sup>
		JP	11-231834	A	ISHIZUKA	08-27-1999		X*
		JP	2000-200066	A	ISHIZUKA	07-18-2000		X*
		EP	1 071 070	A2	SCHULER ET AL	01-24-2001		
		PCT	WO 02/091341	A2	LECHEVALIER	11-14-2002		
			*English abstract attached.					

Examiner Signature		Date Considered	
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\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Place a check here if English translation is attached.

DATE MAILED: April 8, 2004

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+

PTO/SB/08B (08-00)

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitute for Form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				Application Number			
				Filing Date		Herewith	
				First Named Inventor		HATTORI	
				Group Art Unit			
				Examiner Name			
Sheet	2	of	2	Attorney Docket Number		04218/LH	
<b>OTHER DOCUMENTS - NON-PATENT LITERATURE DOCUMENTS</b>							
Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	Include name of author (in CAPITAL LETTERS), title of article, title of item, date, page(s), volume-issue number(s), publisher, city and/or country where published					T <sup>2</sup>
		Young-Sun NA et al; "1.8-INCH FULL-COLOR OEL DISPLAY FOR IMT2000 TERMINALS"; SID INTERNATIONAL SYMPOSIUM DIGEST OF TECHNICAL PAPERS, BOSTON, MASS. MAY 21-23, 2002., Vol. 33, No. 2, May 2002; pages 1178-1181.					
Examiner Signature					Date Considered		

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Place a check here if English translation is attached.

DATE MAILED: **April 8, 2004**

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>03S0619P</b>	<b>FOR FURTHER ACTION</b>		see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. <b>PCT/JP 03/08670</b>	International filing date (day/month/year) <b>08/07/2003</b>	(Earliest) Priority Date (day/month/year) <b>09/07/2002</b>	
Applicant <b>CASIO COMPUTER CO., LTD.</b>			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

2

☐ None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP 03/08670

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 G09G3/32

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G09G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 13, 30 November 1999 (1999-11-30) -& JP 11 231834 A (PIONEER ELECTRON CORP), 27 August 1999 (1999-08-27) abstract	1, 2, 14, 17-19, 22, 23, 38, 39, 42-48
Y	the whole document -& US 6 473 064 B1 (PIONEER CORPORATION) 29 October 2002 (2002-10-29) the whole document	15, 16, 40, 41
A	US 6 323 631 B1 (JUANG DAR-CHANG) 27 November 2001 (2001-11-27)  the whole document	1-14, 17-19, 22-39, 42-51



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\* & \* document member of the same patent family

Date of the actual completion of the international search

4 March 2004

Date of mailing of the international search report

31.03.04

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Harke, M

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP 03/08670

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>NA Y-S ET AL: "1.8-INC FULL-COLOR OEL DISPLAY FOR IMT2000 TERMINALS"</p> <p>2002 SID INTERNATIONAL SYMPOSIUM DIGEST OF TECHNICAL PAPERS. BOSTON, MA, MAY 21 - 23, 2002, SID INTERNATIONAL SYMPOSIUM DIGEST OF TECHNICAL PAPERS, SAN JOSE, CA: SID, US,</p> <p>vol. 33 / 2, May 2002 (2002-05), pages 1178-1181, XP001134337</p> <p>the whole document</p> <p>---</p>	15,16, 40,41
Y	<p>EP 1 071 070 A (INFINEON TECHNOLOGIES CORP) 24 January 2001 (2001-01-24)</p> <p>the whole document</p> <p>---</p>	15,16, 40,41
Y	<p>PATENT ABSTRACTS OF JAPAN</p> <p>vol. 2000, no. 10,</p> <p>17 November 2000 (2000-11-17)</p> <p>-&amp; JP 2000 200066 A (PIONEER ELECTRONIC CORP), 18 July 2000 (2000-07-18)</p> <p>abstract</p> <p>the whole document</p> <p>-&amp; US 6 587 087 B1 (PIONEER CORPORATION)</p> <p>1 July 2003 (2003-07-01)</p> <p>the whole document</p> <p>---</p>	15,16, 40,41
X	<p>US 6 369 786 B1 (SUZUKI YOSHIO)</p> <p>9 April 2002 (2002-04-09)</p> <p>the whole document</p>	1,2, 17-20, 22,23, 45-47
A		21
P,X	<p>WO 02 091341 A (CLARE MICRONIX INTEGRATED SYST) 14 November 2002 (2002-11-14)</p> <p>the whole document</p> <p>-----</p>	1,2, 17-23, 45-47

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/JP 03/08670

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-14,17-19,22-39,42-51

The first concept concerns a driving device comprising a driving current supply circuit which supplies a driving current to an optical element, and a control voltage applying circuit which supplies a charge voltage to the optical element, wherein

the driving current supply circuit comprises a single constant current generating circuit, and a plurality of current storage circuits.

2. Claims: 1,15 to 17,40,41

The second concept concerns a driving device comprising a driving current supply circuit which supplies a driving current to an optical element, and a control voltage applying circuit which supplies a charge voltage to the optical element, and

a pulse width control circuit controlling the pulse width of the driving current.

3. Claims: 17, 20, 21

The third concept concerns a driving device comprising a driving current supply circuit which supplies a driving current to an optical element, and a control voltage applying circuit which supplies a charge voltage to the optical element,

wherein the charge voltage has a voltage value which is higher than the threshold voltage of the optical element, and lower than a maximum value of a voltage value applied to the optical element when the driving current is supplied.



# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP 03/08670

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
JP 11231834	A	27-08-1999	US	2002196215 A1		26-12-2002
			US	6473064 B1		29-10-2002
US 6323631	B1	27-11-2001	GB	2371429 A		24-07-2002
EP 1071070	A	24-01-2001	US	6191534 B1		20-02-2001
			EP	1071070 A2		24-01-2001
			JP	2001085984 A		30-03-2001
JP 2000200066	A	18-07-2000	US	6587087 B1		01-07-2003
US 6369786	B1	09-04-2002	JP	11311970 A		09-11-1999
WO 02091341	A	14-11-2002	WO	02091341 A2		14-11-2002
			US	2002167505 A1		14-11-2002
			US	2002167478 A1		14-11-2002